

## Grant Income

HiLumi LHC, FP7, 4.9 M€, Nov 2011 - Nov 2015. Coordinator: CERN, Switzerland.

At University of Liverpool: Kai Hock - team member, 20% staff time

Racetrack FFAG, STFC PRD, £39822, Mar 2013 - Mar 2015

Principal Investigator: Kai Hock

## Education, Training and Outreach

### External Examiner

University of Manchester

2012 PhD Michael Salt

2009 MSc Suliman Alshammari

Lancaster University

2011 PhD Abiola Oladipo

University of Singapore

2009 PhD Neo Chye Poh

### Internal Examiner

University of Liverpool

2009 PhD Lei Zang

2013 PhD David Holder

### University Teaching

University of Liverpool

2009 – 2013 Statistical and Low Temperature Physics Lectures  
Module organiser

2009 – 2013 Year 1 Laboratory  
Demonstrator

### Cockcroft Institute Lectures

2011 Special Relativity and Electromagnetism

## Talks

FFAG 11 Workshop, Oxford, 11 – 16 September 2011.

Ultra Bright Electron Sources Workshop, Cockcroft Institute, 29 June – 1 July 2011.

## Interview Panels

2009, 2012 Two Postdoc recruitments by myself.

2009, 2010 Two PhD student recruitments by myself.

2011, 2012 Two postdoc recruitments by Prof. Roger Jones, University of Manchester.

2011 Postdoc recruitment by Dr Hywel Owen, University of Manchester.

2012 Marie Curie fellow recruitments by Prof Dr Carsten Welsch, University of Liverpool.

2012 Postdoc recruitment by Dr Rob Appleby, University of Manchester.

## PhD Students, Postdocs

### Postdocs

2009	Dr Ian Kirkman
2011	Dr Maxim Korostelev
2012 - 2014	Dr Ian McGregor

### PhD Students

2009 - 2013	Mark Ibison
2010 - 2014	Chris Edmonds

## Reviewer for Journals

Nuclear Instruments and Methods A

## Outreach

2010 Royal Society Exhibition  
2012 Culham PhD Open Day  
2012 UCAS Open Day, University of Liverpool

Kai Hock, Afterword to short story by Gwyneth Jones, "Collision," in When it Changed, edited by Geoff Ryman, Comma Press, UK, September 2009.

## Journal Papers

K. M. Hock and A. Wolski, "Time evolution of coupled-bunch modes from beta function variation in storage rings," Phys. Rev. ST Accel. Beams, vol. 10, no. 8, 084401 (2007)

D. Angal-Kalinin, et al, "The Cockcroft Institute Wakefields Interest Group", Beam Dynamics Newsletter, 45. International Committee for Future Accelerators, (2008), pp. 26-37.

K. M. Hock, "Photonic band gap in thin wire metamaterials," Phys. Rev. E, vol. 77, no. 3, 036701 (2008).

K. M. Hock and A. Wolski, "Transient jitter from injection in storage rings," Phys. Rev. ST Accel. Beams, vol. 12, no. 9, 091001 (2009).

K. M. Hock, M. G. Ibison, et al, "Beam tomography in transverse normalised phase space," Nuclear Instruments and Methods A, vol. 642, (2011), pp. 36-44.

K. M. Hock and A. Wolski, "The Effect of NEG Coating on Resistive Wall Wake Field," Nuclear Instruments and Methods A, vol. 657, (2011), pp. 94-98.

K. M. Hock and C. S. Edmonds, "Tracking protons in an FFAG and a synchrotron with tiny arcs," Nuclear Instruments and Methods A, vol. 664, (2012), pp. 140-147

S. Machida, et al, "Acceleration in the linear non-scaling fixed-field alternating-gradient accelerator EMMA", Nature Physics 8, 243-247 (2012).

M. G. Ibison, K. M. Hock, et al, "ALICE Tomography Section: Measurements and Analysis," Journal of Instrumentation, 7, P04016 (2012).

K. M. Hock and M. G. Ibison, "A study of the Maximum Entropy Technique for phase space tomography", Journal of Instrumentation, in press (2013).

## Conference Papers

K. M. Hock and A. Wolski, "An Elementary Analysis of Coupled-Bunch Instabilities," PAC07 Proceedings, Particle Accelerator Conference, Albuquerque, New Mexico, USA (2007), p. 3399.

K. M. Hock and A. Wolski, "Effect of fill patterns on extraction jitter in damping rings," EPAC 2008, European Particle Accelerator Conference, Genoa, Italy (2008).

A. Bungau, *et al*, "Design of the Photon Collimators for the ILC Positron Helical Undulator," EPAC 2008, European Particle Accelerator Conference, Genoa, Italy (2008).

J. A. Clarke, *et al*, "The design of the positron source for the International Linear Collider," EPAC 2008, European Particle Accelerator Conference, Genoa, Italy (2008).

J. A. Clarke, *et al*, "Construction of a full scale superconducting undulator module for the International Linear Collider positron source," EPAC 2008, European Particle Accelerator Conference, Genoa, Italy (2008).

I. B. Bailey, *et al*, "Depolarization and beam-beam effects at the linear collider," EPAC 2008, European Particle Accelerator Conference, Genoa, Italy (2008).

M. G. Ibison, K. M. Hock, D. J. Holder and M. Korostelev, "Development of tomographic reconstruction methods for studies of transverse phase space in the EMMA FFAG injection line," IPAC010 Proceedings, International Particle Accelerator Conference, Kyoto, Japan (2010).

J. Pasternak, *et al*, "Accelerator and particle physics research for the next generation muon to electron conversion experiment - the PRISM task force," Proceedings of IPAC'10, Kyoto, Japan, (2010).

M. G. Ibison, K. M. Hock, *et al*, "Measurements at the ALICE Tomography Section," Proceedings for the International Particle Accelerator Conference, San Sebastian, Spain (2011).

M. G. Ibison, K. M. Hock, *et al*, "The effect of space-charge on the tomographic measurement of transverse phase-space in the EMMA injection line," Proceedings for the International Particle Accelerator Conference, San Sebastian, Spain (2011).

A. Kalinin, *et al*, "The EMMA accelerator, a diagnostic systems overview," Proceedings for the International Particle Accelerator

Conference, San Sebastian, Spain (2011).

J. Pasternak, et al, "Studies for the PRISM FFAG Ring for the Next Generation Muon to Electron Conversion Experiment," Proceedings for the International Particle Accelerator Conference, San Sebastian, Spain (2011).

B. Holzer, et al, "Optics and lattice optimisations for the LHC upgrade project", Proceedings of IPAC2012, New Orleans, Louisiana, USA.

M. G. Ibison, K. M. Hock, et al, "Modelling space-charge and its influence on the measurement of phase space in ALICE by tomographic methods", Proceedings of IPAC2012, New Orleans, Louisiana, USA.

B. Muratori, et al, "New results from the EMMA experiment", Proceedings of IPAC2012, New Orleans, Louisiana, USA.

J. Pasternak, et al, "Status of the PRISM FFAG design for the next generation muon-to-electron conversion experiment", Proceedings of IPAC2012, New Orleans, Louisiana, USA.